

CHAL - 0382 ✓
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6 November 1958

MEMORANDUM FOR: Special Assistant to the Director
for Planning and Development

THROUGH : Director of Development and Procurement (P)

SUBJECT : Crash Locator Beacon

REFERENCE : CHAL-0378 dated 30 October 1958

1. The attached papers from studies at Wright-Patterson Air Force Base and the sled runs at Edwards Air Force Base show that the production of such a beacon system is feasible. Hycon and Lockheed agree that the size can be substantially reduced.

2. Certainly, no argument can be proffered against the desirability of such a device. Many of our operational missions require extended flight over routes of sparse population. These remote areas offer little probability that a plane or pilot in distress will be seen. The use of a distress beacon to alert a rescue unit to dispatch qualified assistance would be a comforting thought to the pilot during such flights.

3. However, one irresolvable problem continually appears in all investigations of crash beacons: How should the system be actuated? Manual operation does not present any particular problem in design. Past experience has shown, in general, that the pilot is too busy to actuate the mechanism, or due to physical incapacitation is not capable of such actuation. In the latter case are included oxygen deficiencies and aircraft structural failures in flight.

4. Automatic actuation presents as many opinions as there are separate designers. Most studies have centered around g loads as the criterion for operation. If the critical g load is set low, accidental and undesirable actuation will occur during a hard landing, in flight regions of moderate to heavy turbulence, and even during take-off from a moderately rough

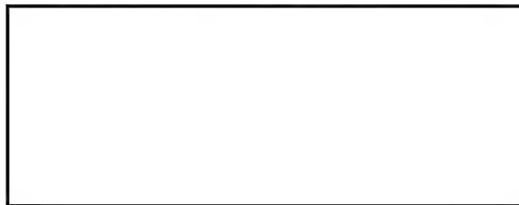
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runway. If the required g load is set at some high value, actuation will not be assured even in a crash. The controlled type of crash landing, caused generally by engine malfunction or fuel starvation, does not result in excessive g loads either in the normal or longitudinal direction. If the aircraft is abandoned in flight, no prediction can be made of the loads that will be imposed at ground contact or the attitude at impact so that proper orientation of the beacon will be maintained. Although the static tests at Wright Field and the dynamic tests at Edwards were successful, the actual crash problem cannot be simulated and investigated. As in the case of the automatic actuation with the g load criterion, other actuating proposals have been just as quickly rejected.

5. Summary: The concept of having a Crash Locator Beacon installed on the aircraft is highly desirable. Such a beacon can be manufactured and installed on our aircraft. The problem of agreeing on the method of automatic actuation has not been resolved and does not appear to offer any hope of solution at the present time. The design and development of a better light-weight beacon does not influence the basic problem of system actuation disagreements. Both manual and automatic actuation systems must be included in any acceptable system.

6. Recommendations: That we do not pursue the further development of such a loactor. When a suitable beacon system has been developed, we should investigate the installation possibilities on the aircraft of interest at that time. It is also recommended that further discussion of this subject be held with Col. Brewer during his visit to this Headquarters on 14 November 1958.



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RMB -

Agree - If you agree we will inform all parties concerned.

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[Redacted] (6 Nov 1958)

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Att: copy of letter from [Redacted]
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